

Biological and Social Impacts of the Illegal Introduction of Northern Pike into Northern Idaho

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Northern pike: deadly predator or trophy sport fish? The illegal introduction of northern pike into northern Idaho created a no win situation for fishery managers. It was feared that northern pike would be the final blow for the severely depressed cutthroat population in Coeur d'Alene Lake. The ease at which anglers established new populations posed a threat to waters throughout Idaho, but the ability to control or eliminate pike populations was marginal at best. On the other hand, northern pike created a new sport fishery for large, easy to catch fish that were good to eat. This paper briefly discusses the biological and social considerations that were used to shape management direction for northern pike in Idaho.

Exotic fish species have played a major role in shaping sport fishing opportunities in the lowland lakes of northern Idaho. Historically, the only game fish species present were westslope cutthroat trout, bull trout and mountain whitefish. Many smaller lowland lakes were probably barren or populated with native nongame species before exotic game fish were introduced. Stocking by the former U.S. Fish Commission at the turn of the century established largemouth bass, black crappie, yellow perch, pumpkinseed sunfish, brown and black bullhead, tench, lake trout, brook trout, rainbow trout and lake whitefish. Idaho Fish and Game added to the mix with rainbow and brown trout, kokanee and chinook salmon, splake (lake trout/brook trout hybrid), bluegill, tiger muskie (northern pike/muskellunge hybrid), smallmouth bass and channel catfish. One species that was not intentionally introduced, however, was the northern pike. The illegal introduction of northern pike and establishment of viable populations in the panhandle of northern Idaho resulted in significant changes to existing fish populations and sport fisheries.

Northern pike were first discovered in northern Idaho in 1974 at two locations. A single fish was collected by Idaho Fish and Game personnel in the Clark Fork River below Cabinet Gorge Dam near the Idaho/Montana border and an angler reported catching a northern pike in Cave Lake, Coeur d'Alene Lake system. The Cave Lake population came from a reported illegal release of 12 fish hauled over from Lone Pine Reservoir, lower Flathead River drainage, Montana in 1972. Lone Pine Reservoir was the original site for the illegal establishment of northern pike in Montana in 1953 (personal communication, Jim Vashro, Montana Fish Wildlife and Parks). Cave Lake is one of eight "Lateral" lakes directly connected to the Coeur d'Alene River and to Coeur d'Alene Lake (31,500 surface acres). Colonization of the entire Coeur d'Alene/Lateral Lake system occurred relatively rapidly and was no doubt aided by anglers transporting fish in boat livewells. By the mid 1980's, northern pike were firmly established throughout the entire Coeur d'Alene system, and they were beginning to show up in other disjunct lowland lakes.

Once established, northern pike created a highly desirable sport fishery unique in Idaho. Anglers formerly from Midwestern states had something familiar to fish for and many native Idaho anglers were experiencing northern pike fisheries for the first time. The aggressive feeding behavior of northern pike provided anglers with a fish that was relatively easy to catch at virtually all times of the year. The white flaky meat of northern pike was also considered prime eating, despite their numerous Y bones. Northern pike were harvested primarily by bait anglers during the spring and through the ice in the winter, and by lure anglers during the summer and fall. Most northern pike anglers were harvest oriented and anything over about 16 inches was considered fair game. Other pike anglers fished strictly for trophy fish and they became a very vocal special interest group. An angler effort estimate in Cougar Bay (Coeur d'Alene Lake) during a three week period during the spring fishery was 14,685 hours in 1991 (Nelson et. Al. 1996). The prespawn bait and bobber fishery allowed both boat and bank anglers of all skill levels the opportunity to catch trophy sized pike (typically unspawned females over 20 pounds) and new state record fish were being caught each spring. The existing 38 lb. 9 oz., 49 inch fish was caught in April of 1992; an 8 year old unspawned female.

The Coeur d'Alene Lake northern pike fishery was being compared to catch-and-release fisheries in the Northwest Territories in terms of the trophy fish being caught. Trophy pike anglers demanded seasons to end the "slaughter" occurring during the prespawn bait and bobber fishery and winter meat fishery. They also pushed for a one or two fish bag limit and high minimum size limit in hopes of maintaining this unique trophy fishery.

Trout anglers, on the other hand, demanded the game fish status of pike be removed and mandatory

kill regulations be implemented. They were concerned about the predatory impact of northern pike on trout fisheries and the continued spread of pike to other waters from illegal introductions. Cutthroat trout in Coeur d'Alene Lake had already been compromised by the significant loss of spawning and rearing habitat in tributary streams and the establishment of non-native salmonids and warmwater species. Northern pike created an additional threat to cutthroat from predation. Adult cutthroat migrate through weedy bays on their way to and from spawning streams from April through June. Juvenile cutthroat are vulnerable in these same areas during early June when their stream rearing is completed at age 1 to 3 and they migrate to the lake.

Northern pike created a "no win" situation for fishery managers. Idaho state management direction gives priority to native species; adfluvial westslope cutthroat trout being the primary species of concern in the Coeur d'Alene Lake system. There was no biological data quantifying the predatory impact on cutthroat or the potential benefit to cutthroat from northern pike suppression efforts. Elimination of northern pike from the Coeur d'Alene Lake system was also not possible due to their high reproductive potential and complete distribution throughout a very large area.

It was also not possible to sustain a trophy northern pike fishery. The phenomenal fishery that existed in the late 1980's and early 1990's was the result of a fish invading a vacant niche and relatively low angler exploitation. Trophy pike management in other states typically involves eliminating nearly all harvest opportunity to allow some fish to reach an old age. Protecting pike from harvest would increase pike numbers, resulting in slower pike growth and putting other game fish populations at risk as predation increased.

Management direction for northern pike at that time called for maximum harvest opportunity to maintain pike populations at low densities. It was reasoned that impacts on other fish species would be reduced and northern pike growth rates would remain high. Trophy fish would still be available, but in far fewer numbers, due to the large size of Coeur d'Alene Lake and the ability of some fish to escape harvest long enough to reach trophy size.

Threats were being made by some pike anglers to spread northern pike to all lowland lakes in the region due to the Department's bias against pike. Fishing regulations on northern pike were hotly debated during the 1988-89 regulation setting process. Minimum size limits and seasons were not considered, but a three fish bag limit was proposed based on angler opinion surveys and the experience of other states. Angler opinions continued to influence the process and the Fish and Game Commission ultimately approved a five fish northern pike bag limit and a five pole (tip-up) limit while ice fishing were implemented in 1988.

The five fish limit had no biological effect because most anglers rarely caught five fish. Socially, however, pike anglers felt that some limit was better than no limit and demands for trophy pike management and the vocal threat to illegally spread northern pike to other waters diminished. The five rod (tip-up) limit for ice anglers was, however, an important management tool in allocating limited ice fishing space. Historically, some anglers would set out as many as 50 tip-ups per angler excluding most other anglers from the most productive fishing areas.

Management changes were also made in 1988 to improve adfluvial cutthroat populations. Harvest opportunity was significantly reduced by the seasonal closure of several "hot spot" fisheries where cutthroat were concentrated and vulnerable. A drainage wide 1 over 14 inch harvest rule was implemented to reduce angler exploitation. Catch-and-release fisheries were established in headwater areas.

A comprehensive two year study was finally funded in 1989 and 1990 to evaluate the population dynamics, food habits, movement and habitat use of northern pike in the Coeur d'Alene Lake system (Rich 1992). Adult northern pike densities were some of the lowest reported in the literature, whereas somatic growth rates and condition factors were some of the highest. Angler exploitation was high and directly proportional to accessibility of the water fished. High growth rates of pike were directly related to low densities. Low densities were initially the result of northern pike colonizing a vacant niche, but high angler exploitation also played an important role.

Radio tagged northern pike indicated a strong preference for habitat associated with the aquatic macrophyte beds of *Potamogeton* and very limited movements through deep, unvegetated lacustrine habitats. Prey selection varied seasonally and with local availability of prey. Yellow perch were the most important prey item numerically, but salmonids and catostomids were the most important by weight. Adfluvial westslope cutthroat trout were selected for by northern pike. Estimates for cutthroat trout consumption in Cougar Bay of Coeur d'Alene Lake ranged from 2,500 to 4,200 trout for a population of northern pike ranging from 600 to 1,000 fish.

It appeared that concerns about predation on native cutthroat trout were justified. Harvest estimates of cutthroat trout in the mouth of the Spokane River just around the corner from Cougar Bay were in the

2,500 to 4,000 fish range before this fishery was closed in 1988. All the gains made by reducing angler harvest were essentially eaten up by northern pike. Cutthroat trout did not respond to the protective regulations, but they continue to persist at low levels.

Poor habitat conditions in tributary streams appear to be far more important than northern pike predation in regulating overall cutthroat trout abundance, however. Cutthroat populations in tributaries to Wolf Lodge Creek on the north end of Coeur d'Alene Lake range from poor to good depending on the quality of rearing habitat present. Cutthroat spawners and juvenile migrants from all the various tributaries are subject to the same level of northern pike predation in Wolf Lodge Bay. Habitat condition is the primary limiting factor, but northern pike play an important role in suppressing an already depressed cutthroat population.

Illegal introductions of northern pike in other panhandle region lakes continued. Northern pike travel well in boat livewells and their high fecundity (9,000 eggs per pound of female) and good spawning success with few individuals make them easy to establish. The establishment of northern pike in Hayden Lake, a popular quality trout and bass fishery, in 1994 caused a public furor and renewed demands for the eradication of northern pike from all panhandle waters. The five fish limit on northern pike was removed on Hayden Lake in 1996 and harvest was encouraged. Creel checks still indicated that most anglers were catching fewer than five pike daily. A "no limit" rule may not be biologically effective, but it does seem to have important social implications. Promoting pike harvest has focused an intense winter ice fishery on Hayden Lake that may be helping to keep the pike population from becoming overabundant.

Northern pike recruitment appears to be controlled by natural factors, rather than angler harvest. High natural mortality of eggs and newly hatched larvae is primarily related to water level and temperature fluctuations during the spring spawning season. Predation by other warmwater species on pike eggs and larvae may also play a role in some lakes. Elimination of northern pike is therefore not a realistic management option and the best we can hope for is maintaining pike populations at low densities by encouraging angler harvest.

Realistically then, the most effective management tool for northern pike in northern Idaho is essentially been no management. The five fish bag limit on northern pike is not regulating harvest and therefore has no biological effect. The social impact of a five fish bag limit is unquantifiable, but it appears to have created a tolerable situation for both trout and pike anglers. Going back to no bag limit on northern pike would likely renew the concerns of pike anglers about their fishery resource being mismanaged and possibly encourage a new round of illegal introductions, without having any positive effect on trout populations. For better or worse, northern pike are here to stay in northern Idaho, and their presence will be factored into native species management decisions.

Literature Cited

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